

## **Assessment of Chinook, chum, and coho salmon escapements in the Holitna River drainage using radiotelemetry, 2002**

**Abstract:** In 2002, radiotelemetry was used to estimate the proportion of Chinook salmon *Oncorhynchus tshawytscha*, chum salmon *Oncorhynchus keta*, and coho salmon *Oncorhynchus kisutch* retraining to the Holitna River drainage that passed through the Kogrukluk River weir, and to estimate the abundance of Chinook, chum and coho salmon escaping into the Holitna River drainage. Fifty-nine Chinook salmon, 438 chum salmon, and 188 coho salmon were captured fishing with drift gillnets near the mouth of the Holitna River. Of the total fish captured 58 Chinook, 130 chum and 130 coho salmon were radio-tagged with esophageal transmitters. Ninety-five Chinook salmon radio tagged in the related Kuskokwim River Chinook salmon radiotelemetry project entered the Holitna River and augmented the total number of radio-tagged Chinook salmon in the Holitna River. Including those fish fitted with transmitters in the Kuskokwim River Chinook salmon project, 144 Chinook, 116 chum, and 64 coho salmon fitted with radio transmitters resumed their upstream migrations. Subsequent movements of all radio-tagged salmon were monitored with three stationary tracking stations that logged radio-tagged fish that migrated up the Hoholitna River, the Holitna River upstream of the Hoholitna River, or the Kogrukluk River past the weir. Radio-tagged salmon were also located during four aerial surveys of the Holitna River drainage. Estimated proportions through the weir were 0.23 (95% C.I.=16-0.30) for Chinook salmon, 0.08 (95% C.I.=0.01-0.15) for coho salmon and 0.09 (95% C.I.=0.02-0.21) for chum salmon. An estimated 42,902 (SE=6,334) Chinook, 542,172 (SE=285,925) chum, and 157,277 (SE=56,624) coho salmon returned to the Holitna River drainage. Chinook and coho salmon predominantly spawned in first and second order tributaries, and most chum salmon spawned in the mainstem Holitna River. Numbers of radio-tagged fish located upstream from Nogamut, a proposed replacement site for the Kogrukluk River weir, indicated that larger proportions of the total runs for all three species would be enumerated if the weir moved to this location.

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